

scatters on the interior swamps (e.g., 38CH1189 and 38BK1176).

Late Mississippian Period (AD 1400 - 1550)

During this phase, the regional chiefdoms apparently realigned, shifting away from the Savannah River centers to those located in the Oconee River basin and the Wateree-Congaree basin. As in the earlier Mississippian phases, the Berkeley/Charleston County area apparently lacked any mound centers, although the dating and interpretation of the small mounds at 38CH644 remain enigmatic. Regardless, it appears that the region was well removed from the core of Cofitachequi, the chiefdom to the interior (DePratter 1989; Anderson 1989). DePratter (1989:150) specifies:

The absence of sixteenth century mound sites in the upper Santee River valley would seem to indicate that there were no large population centers there. Any attempt to extend the limits of Cofitachequi even farther south and southeast to the coast is pure speculation that goes counter to the sparse evidence available.

Pee Dee Complicated Stamped and Mississippian Plain ceramics mark the Pee Dee phase. Simple stamped, cord marked, and check stamped pottery was apparently not produced in this period.

Pee Dee phase components have been identified at the Moore's Landing shell midden (Anderson and Claggett 1979a, 1979b), at the 38CH260 shell midden (Trinkley 1981a), at the 38CH300 shell midden (Trinkley 1981b), and at 38CH769, an interior ceramic scatter on the Wambaw Swamp, to the east.

HISTORIC OCCUPATION OF THE REGION

The Charleston Harbor region has a rich history following the arrival of Europeans in the area; yet no comprehensive overview has been produced to date. The following overview draws from the works of Orvin (1973), Smith (1931), Gregorie (1961), and Rogers (1984), among others. The earliest historic accounts also provide some idea of the lifeways of Native American groups who were present during the sixteenth and seventeenth centuries.

The ethnohistoric record from coastal South Carolina suggests that the protohistoric groups of the region followed a seasonal pattern which included summer aggregation in villages for planting and harvesting domesticates, and dispersal into one to three family settlements for the remainder of the year (Rogel 1570 [in Waddell 1980:147-151]). This coastal protohistoric adaptation is apparently very similar to the Guale pattern of the Georgia coast, as reconstructed by Crook (1986:18). Specific accounts of the protohistoric

groups of the region, the Sewee and the Santee, have been summarized by Waddell (1980). It appears that both groups included horticultural production within their seasonal round, but did not have permanent, year round villages. Trinkley (1981c) suggests that a late variety of Pee Dee ceramics was produced by Sewee groups in the region; his late variety may correspond to the Ashley ware initially described by South (1973; see also Anderson et al. 1982).

The Ashley phase is recognized by the presence of Ashley Complicated Stamped and Mississippian Plain pottery (Anderson et al. 1982). Ashley phase components have been identified or suggested at the Moore's Landing shell midden (Anderson and Claggett 1979a, 1979b), and possibly at 38CH536, a shell midden site on Awendaw Creek. Although Lawson (1709 [1967]) reported a mound and village site about 20 miles north of the Santee river, it appears that isolated homesteads, hamlets, and small seasonal villages were more typical of the Sewee Indian sites in the lower Cooper drainage and nearby portions of the Low Country (Anderson and Logan 1981:31).

Initial European exploration into coastal South Carolina occurred during the early sixteenth century. Indian groups encountered by the European explorers and settlers probably were living in a manner quite similar to the late prehistoric Mississippian groups identified in archaeological sites throughout the Southeast. Indeed, the highly structured Indian society of Cofitachequi, formerly located in central South Carolina and visited by De Soto in 1540, represents an excellent example of the Mississippian social organizations present throughout southeastern North America during the late prehistoric period (Anderson 1985). However, the initial European forays into the Southeast contributed to the disintegration and collapse of the aboriginal Mississippian social structures; disease, warfare, and European slave raids all contributed to the rapid decline of the regional Indian populations during the sixteenth century (Dobyns 1983; Ramenofsky 1982; Smith 1984). By the late seventeenth century, Indian groups in coastal South Carolina apparently lived in small politically and socially autonomous semi-sedentary groups (Waddell 1980). By the middle to late eighteenth century, very few Indians remained in the region; all had been displaced or annihilated by the ever-expanding English colonial settlement of the Carolinas (Bull 1770 cited in Anderson and Logan 1981:24-25).

Waddell (1980) identified 19 distinct groups between the mouth of the Santee River and the mouth of the Savannah River in the middle of the sixteenth century. Anderson and Logan (1981:29) suggest that many of these groups probably were controlled by Cofitachequi, the dominant Mississippian center/polity in South Carolina, prior to its collapse. By the seventeenth century, all were independently organized. In the immediate vicinity of St. Thomas Parish, these groups included the Etiwan and Seewee "tribes." The Etiwans were mainly settled on or near Daniel Island, but their range extended from the to the head of the Cooper River. The territory of the Seewee met the territory of the Etiwan high up the Cooper, and extended to the north as far as the Santee River (Orvin 1973:14). Mortier's map of Carolina (Figure 2), prepared in 1696, shows the Sampa Indians between the Cooper and Wando Rivers, to the northeast of Daniel Island, and the Wando

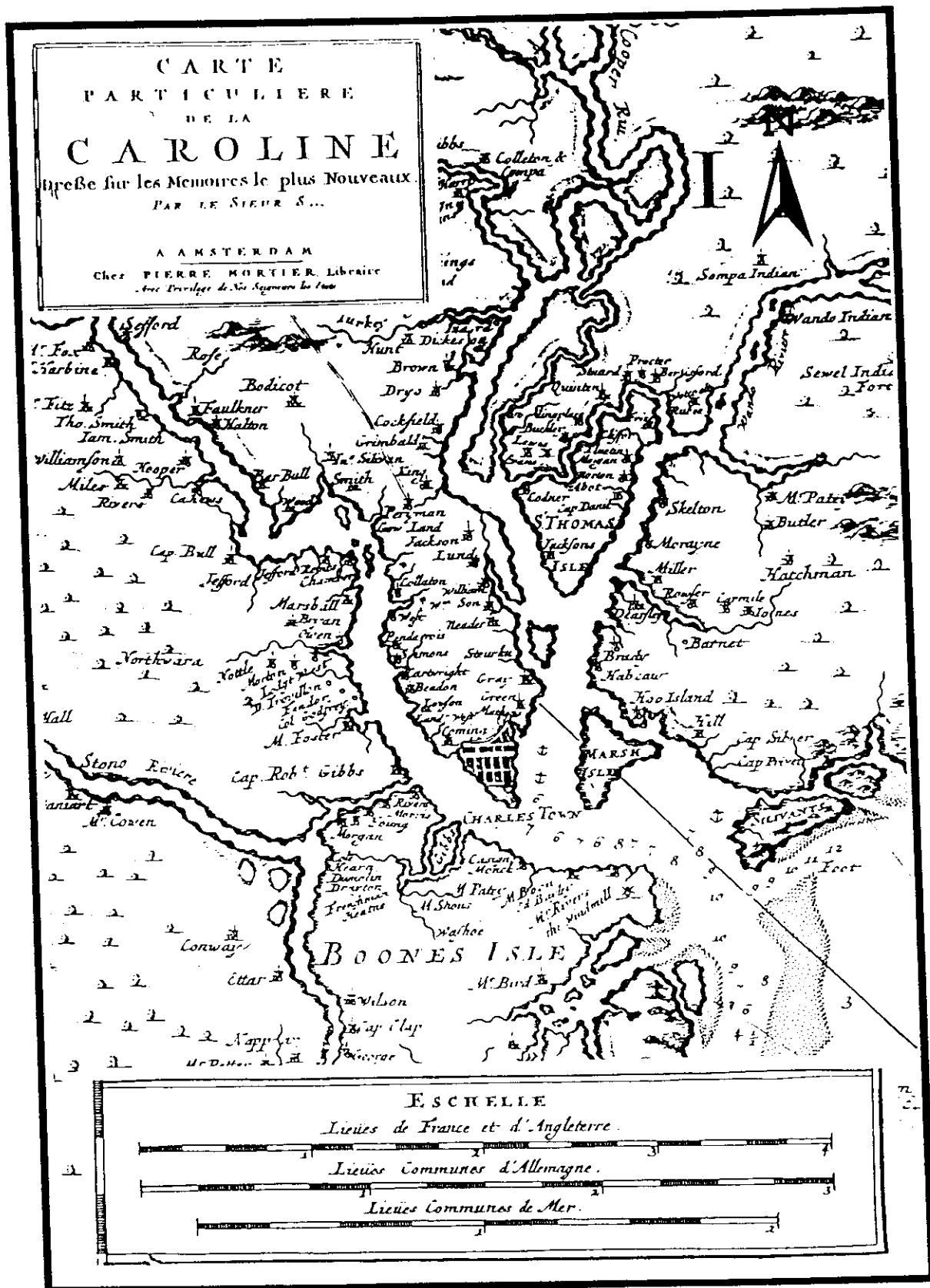


Figure 2. The Charleston Harbor Region in 1696.

Indians and Sewel [sic] Indian Fort east of the Wando River, northeast of Daniel Island. Presumably, any of these groups could have traveled through the project tract, although much of the Island was settled at that time.

The Carolina coast was first permanently settled by Europeans in 1670. The early Spanish attempt at San Miguel de Gualdape (1526) to the north, the French attempt at Port Royal (1562), and the Spanish settlement at Santa Elena (1566-1587) on Parris Island apparently had little impact on the study area. The establishment of Charles Towne by the British in 1670, however, sparked a period of intensive fur trade with the Indians of the region, and provided a base from which settlers quickly spread up the Wando and Cooper Rivers.

The early economic development of the region focused on the Indian trade. In Henry Woodward's accounts, it is mentioned that Maurice Mathews opened up a trade from Fair Lawn, near Moncks Corner, by July of 1678 (Fagg 1970). However, agricultural industries soon replaced the furs and other local commodities acquired from the aboriginal inhabitants of the region. Trade with the Indians was pursued aggressively through the beginning of the eighteenth century, but by 1716, conflicts with the Europeans and disease had drastically reduced or displaced the local native population. Trade with the interior Catawba and Cherokee would continue throughout the eighteenth century.

The Carolinas were originally settled as a private colony under the proprietary system; not until 1719 did South Carolina become a royal colony controlled by the British crown. Grants of land were given to the Lords Proprietors of Carolina as well as to those interested in settling in the colony. The Church Act of 1706 established the parish as the local unit of government. Counties or districts within Carolina were divided into parishes, with the local church serving as the administrative center.

The initial settlements in the region took advantage of the extensive woodlands of the region, harvesting the timber cleared from the land for the production of naval stores. Lumber, tar, turpentine, and resin all were produced from the forests cleared for agricultural lands (Gregorie 1961:20; Orvin 1973). Evidences of these harvesting activities include many small circular tar kilns, found throughout the region (Hart 1986). The lumber industry has continued to be very important in the economy of the region.

By the mid-1700s, rice cultivation, cattle raising, and the preparation of naval stores were the leading industries along the rivers that empty into Charleston Harbor (Orvin 1973:58). Rice was the most profitable and leading commodity of the region, although indigo also was intensively cultivated between 1740 and 1776 (Pinckney 1976); later, after a collapse of the rice market, cotton was experimented with as replacement for rice agriculture. Both crops were grown on many plantations, with the low lying areas along the tidally influenced rivers and the many streams and swamps of the region used as rice fields and the higher and drier upland areas plowed and planted in cotton.

During this period, the population of South Carolina expanded drastically. More and more areas were settled, with plantations spreading throughout much of the Low Country. The spread of plantations up the Ashley River is amply illustrated in Mouzon's (1775) map of the Carolinas (Figure 3). The importance of Charleston as a port for the export of local products and the importation of other goods and commodities continued to grow throughout the eighteenth and nineteenth centuries. By the 1840s, the thriving port had been connected with the Savannah River by railroad, providing additional avenues of export for much of the interior of South Carolina and Georgia. The roads and railroads that formed the base of this interior network are amply displayed in Colton's 1854 map of South Carolina (Figure 4).

Large scale agricultural production was achieved through the operation of plantations that employed slave labor. Slaves were brought from western Africa to perform the many tasks necessary to produce cash crops on the plantations. Slave labor was especially essential for rice production, with knowledgeable slaves (i.e., those taken from African rice-producing societies) conducting and directing most of the activities associated with rice growing and harvesting (Joyner 1984). This system of production would continue until the end of the Civil War (1861-1865), which resulted in the abolition of slavery throughout the United States.

Many of the early settlements and plantations focused on the Cooper and Wando Rivers. These streams provided the best opportunity for profitable agricultural production (i.e., rice cultivation) as well as the best avenues of transportation to Charleston or other settlements in the region (South and Hartley 1985). Evidence of the many plantations along these rivers remains today primarily as archaeological sites, although some, like Rice Hope Plantation near Moncks Corner, are still occupied. However, interior tracts also were opened as timber harvesting cleared more lands.

Agricultural products remained the primary industry of the county throughout the nineteenth century. Following the Civil War, the mode of production shifted from plantations with slave labor to one of tenant farmed or share cropped plots within the larger landholdings. This resulted in the dispersal of farm laborers across the upland agricultural portions of the region since cotton could be farmed in small plots. Most of the rice lands were abandoned, however, since adequate pools of labor and capital were not available to continue the cultivation of this crop. The trend of population dispersal continued into the twentieth century, as evidenced by the density of residences through rural portions of the Harbor region in the 1930s (Figure 5). However, more recently, large scale production of soybeans, in particular, has evidenced a shift from small farms to individuals planting and harvesting larger and larger areas. Other modern crops in the region include tobacco, which has replaced the earlier cash crops of the region (e.g., indigo, rice, and cotton) (Long 1980).

As noted above, other industries also developed in the region at an early date. Naval stores production (timber, pitch, tar, and later turpentine) was an early industrial focus of the Coastal Plain. This industry continued throughout the eighteenth and nineteenth



Figure 3. The Charleston Harbor Region in the 1770s.

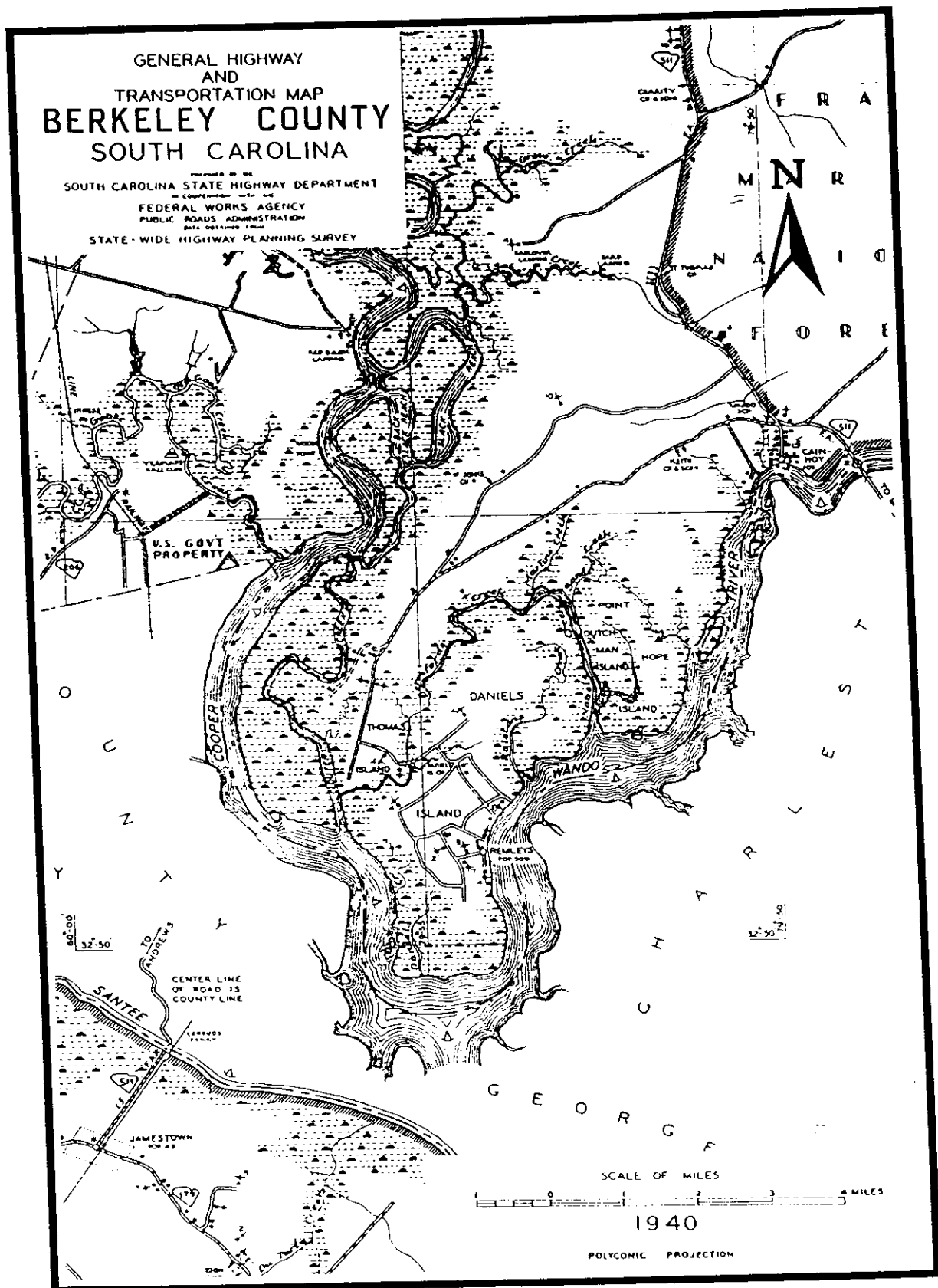


Figure 5. Daniel Island in the 1930s, showing the many tenant houses (from the SCDHPT Berkeley County 1940 road map).

centuries. With nearly 83 per cent of the county covered in forest, the timber industry remains a primary source of income for the region (Long 1980:1). Given the growth of the Berkeley and Charleston Counties since World War II, and their expected continued growth in the near future, such industrial uses as well as residential development of long abandoned lands adjacent to the Charleston municipal area can be expected. More recently, upland areas within the county have been mined for various aggregates and fills. These fills are employed in road building, and residential and industrial developments.

CHAPTER III

RESEARCH METHODS

Assessment of the nineteen potential dredge spoil disposal sites involved primarily a review of previously conducted cultural resources investigations and the files of known sites and historic properties to determine the nature and location of cultural resources in the region. Limited field investigations of the upland locales that contain a disposal site was conducted to assist in the assessment of areas suspected to possess a high probability of containing cultural resources. The distributions of known and potential resources in or near each possible disposal site then was assessed to determine the effect that the construction and operation of the facility could have on these resources. These effects were assessed with respect to the proximity of the possible disposal site to particular resources or areas likely to contain resources and the kinds of activities expected to occur during the construction and operation of the facility. Each possible disposal site then was assigned a score based on its potential to affect adversely known or potential cultural resources. Further descriptions of the methods employed during each phase of the project are described below.

BACKGROUND RESEARCH

The first phase of this reconnaissance involved the examination of existing inventories of cultural resources in the Charleston Harbor region. These inventories included the archaeological site files maintained by the South Carolina Institute of Archaeology and Anthropology at the University of South Carolina in Columbia and the National Register of Historic Places listing maintained by South Carolina Archives and History in Columbia. All recorded sites or listed NRHP properties on the five USGS 7.5 minute topographic maps (Cainhoy, Charleston, Fort Moultrie, James Island, and North Charleston quadrangles) containing the nineteen possible dredge spoil disposal site were noted.

Additional information concerning the distribution of terrestrial archaeological resources was collected from reports of surveys conducted in the region to provide compliance with existing State and Federal regulations and guidelines concerning the management of cultural resources in the region. This review was limited primarily to the area immediately adjacent to Charleston Harbor (i.e., within five miles of the possible dredge disposal sites). Examples include:

Brooks and Scurry's (1979) survey of the Amoco Chemical Plant (Berkeley County).

Scurry and Brook's (1980) survey of the SC State Ports Authority Wando

River Terminal (Charleston County).

Trinkley and Tippet's (1980) survey of the Mark Clark Expressway (I-526) corridor (Charleston and Berkeley Counties).

Martin et al.'s (1987) survey of the Molasses Creek tract (Charleston County).

Southerlin et al.'s (1988) survey of the Parker Island tract (Charleston County).

Espenshade and Grunden's (1989) survey of the Brickyard tract (Charleston County).

Poplin's (1991a, 1991b) cultural resources overviews of the Jack Primus and Harper tracts (Berkeley County).

Southerlin and Espenshade's (1991) survey of the Belle Hall tract (Charleston County).

Jones and Poplin's (1992) survey of two borrow pit locales on the Jack Primus tract (Berkeley County).

Roberts and Poplin's (1992) cultural resources overview of Daniel Island (Berkeley Island).

Information concerning potential underwater cultural resources was gathered through interviews with the staff of the South Carolina Institute of Archaeology and Anthropology's (SCIAA) Underwater Division.

The locations of known sites in the project region (as defined by the five USGS 7.5 minute quadrangles containing the nineteen possible disposal sites) were plotted. The locations of these known resources were compared visually to the locations of possible disposal sites to determine whether similar topographic settings existed between where sites have been identified in the region and within the possible disposal sites. The bias of the focus of previous surveys in the region on tracts of land adjacent to waterways, as opposed to more interior or inter-riverine settings, was not accounted for in this assessment. It should be noted, however, that with one exception, all of the possible disposal sites are adjacent to or within waterways or marshes. Thus, the distribution of known resources in these locales are the most appropriate settings for comparisons to the settings of the possible disposal sites.

Interpretations of terrestrial archaeological site distributions in the Charleston Harbor region suggest that most sites are located adjacent to tidal waterways or marshes (within 300 m) and on relatively well drained soils. Table 4 provides a summary of the sites

Table 4. Site Distributions by Soil Types from Selected Surveys near Charleston Harbor.

ANHYDRIC SOILS

	Texture	Berkeley County				Charleston County						TOTAL SITES
		T&T	B&S	DI	I-526	S&B	MCK	E&G	PI	BH	MtP	
Bonneau	ls		5	2								7
Cainboy	fs	4	1		10							15
Caroline	fsl		4									4
Charleston	lfs	8					3	1		5	1	18
Chipley-Echa	lfs											0
Duplin	fsl	3	2									5
Goldsboro	ls		1		1							2
Hockley	lfs	10							6			16
Lakeland	s										1	0
Norfolk	ls		3	1								5
Wagram	lfs	5					4				1	10
Wando	lfs					26	6				6	38
Total Sites		30	16	3	11	26	13	1	6	5	9	120

HYDRIC SOILS

Capers	scl										1	1
Dawhoo	lfs						2					2
Dunbar	fsl	1	2									3
Kiawah	lfs										1	1
Meggett	l		4		1							5
Seabrook	lfs	5									2	7
Stono	fsl										1	1
Tawcaw	cl		3									3
Wadmalaw	fsl									2		2
Wahee	l				1							1
Yonges	lfs	2						5	10	1		18
Total Sites		8	9	1	1	0	2	5	12	1	5	44

Textures: c= clay, f= fine, l= loam, s= sand

T&T= Trinkley and Tippet 1980
 B&S= Brooks and Scurry 1979
 DI= Daniel Island (other sites)
 I-526= Other sites - Cainboy Peninsula

S&B= Scurry and Brooks 1980
 MCK= Martin et al. 1987
 E&G= Espenshade and Grunden 1989
 PI= Southerlin et al. 1988
 BH= Southerlin and Espenshade 1991
 MtP= Other sites - Mt Pleasant

identified during the above referenced surveys and the numbers of sites associated with each soil types; soil types also are sorted by anhydric (dry or well drained) and hydric (wet or poorly drained) characteristics (as extracted from Long 1980 and Miller 1971). Examination of this table demonstrates that approximately 75 per cent (120 of 164 total sites) of all sites identified to date in the Mount Pleasant area, Daniel Island and Cainhoy Peninsula, and further north on the Cooper River are located on well drained (anhydric soils). Comparison to soil types within the proposed disposal sites and within 300 m of tidal waters and marshes could then suggest the potential for unknown resources to be present.

FIELD INVESTIGATIONS

Limited field inspections of five of the seven possible dredge spoil disposal sites that contained primarily uplands were conducted. These potential upland sites included:

Site D (Upper Thomas Island).

Site F (Lower Thomas Island).

Site N (Morris Island).

Site Q (Cainhoy Road).

Site R (Point Hope Island).

The upland sites not inspected included Rodent Island and Parkers Island. Access to the former locale was difficult by land; efforts to access the tract by boat proved futile due to the extent of marshes around the low uplands within the tract. The Parker Island site had been surveyed intensively by Southerlin et al. (1988); re-examination of this tract was not considered necessary.

Once access to a possible disposal site was gained, a pedestrian traverse of the margins of the site, or segments of the margins, was undertaken. In Site D, the northeast corner of the tract was inspected. In Site F, areas along Beresford and Clouter Creek marshes were inspected. In Site N, two interior areas of Crevasse-Dawhoo soils (consisting primarily of active dune fields) was inspected. In Site Q, logging roads through the possible disposal site were traversed. In Site R, areas adjacent to Sanders Creek, the Wando River, and an interior wetland were inspected. The locations of these inspections are discussed further below. Surface exposures and the marsh edge were examined along this traverse. In addition, small (30 cm by 30 cm) shovel tests were excavated at 30 m intervals along each traverse; fill from these tests was screened through 6.35 mm hardware cloth. No cultural remains were encountered along any of these traverses.

ASSESSMENTS OF POTENTIAL EFFECTS

Once the potential for each site to contain known or unknown cultural resources was determined, assessments of the effect of the construction and operation of a dredge disposal facility at that locale could be undertaken. This involved the identification of the kinds of effects expected to occur as a result of the construction and operation of dredge site. For the most part, these effects were limited to direct impacts; however, the potential of a possible disposal site to affect visually listed NRHP properties in historic Charleston Harbor was considered. Thus, the potential of each possible disposal site was assessed with respect to known NRHP properties, known NRHP eligible properties (archaeological sites), and potential unknown cultural resources (as derived from the soils and topographic data noted above).

A simple scale for potential effects was defined for each category of resource identified (i.e., NRHP property, NRHP eligible property, and unknown resources). Four values were set. These included:

- 0 No apparent adverse effect.
- 1 Minimal apparent adverse effects.
- 3 Moderate apparent adverse effects.
- 5 Extreme apparent adverse effects.

The sum of the scores assigned each possible dredge spoil disposal site represented the anticipated effect the construction and operation of a locale could be expected to produce on cultural resources.

The possible disposal sites then were ranked from low scores to high (implying little or no adverse effects anticipated to extensive adverse effects anticipated). Ranks were assigned from 1 to 19, with tied rankings permitted. In this manner, those locales that appeared least likely to affect cultural resources could be delimited, and informed selections of the most appropriate locales for intensive examination accomplished.

CHAPTER IV

RESULTS OF THE INVESTIGATIONS

Data gathered from archival and field sources were employed to assess the potential of the construction and operation of nineteen possible dredge spoil disposal sites to affect cultural resources. Initially, all known NRHP properties and archaeological sites in each possible disposal site were identified; only Site H (Parker Island) contained any known resources, although Site L (Middle Shoal) is immediately adjacent to Castle Pinckney (38CH76), an NRHP listed property. Then, all cultural resources within one mile of each possible disposal site was identified. Several of the disposal sites presently have no cultural resources within one mile. Therefore, all resources within two miles of each disposal site were identified. Several of the sites still were adjacent to few resources within this more extensive radius. When one considers that the distributions of known sites corresponds more to where archaeological surveys have been conducted rather than where sites actually are (or were) located, efforts to identify the potential for areas within each site were undertaken. Figures 6, 7, 8, 9, and 10 display known resources in or near Sites A through N, and Sites Q through S.

Possible Disposal Site A contains no known NRHP properties or archaeological sites; three known archaeological sites (38BK1269, 38BK1270, and 38BK1271) lie within two miles of the site on the opposite bank of the Cooper River (Figure 6). Site B contains no known resources; three known archaeological sites (38BK831, 38BK832, and 38BK844) lie within two miles of this site, on the Cainhoy Peninsula across the Cooper River from Site B (Figure 6). Site C contains no known cultural resources and no known resources are located within two miles of this possible disposal site (Figure 6).

Possible Disposal Site D contains no known resources. However, approximately 20 known archaeological sites lie within one mile of Site D to the southwest and an additional six sites lie within two miles (Figure 7). Site E also contains no known sites; approximately 20 known archaeological sites are located within one mile, and an additional five sites are located within two miles of Site E (Figure 7).

Site F contains no known resources. However, this site contains the terminus of Cainhoy Road. Undoubtedly, this road follows an historic road from Dover-Calais ferry over the Cooper River northward towards Moncks Corner. Facilities associated with the ferry (landing?, an inn?, etc.) may be present in or near Site F. Additionally, five known archaeological sites are located within one mile of the site, and approximately 30 sites are located within two miles of Site F (Figure 7).

Site G contains no known cultural resources. Five known archaeological sites on Daniel Island are located within one mile of this possible disposal site. The remaining

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for information on this figure.

Figure 7. Known cultural resources near Sites D, E, and F.

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Figure 8. Known cultural resources near Sites G, H, Q, and R.

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Figure 9. Known cultural resources near Sites I, J, K, L, and S.

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Figure 10. Known cultural resources near Sites M and N.

known archaeological sites on Daniel Island, as well as all archaeological sites identified on the I-526 right-of-way on opposite bank of the Wando River, lie within two miles of Site G (Figure 8).

Site H contains 19 known archaeological sites; 14 of these sites have been recommended as eligible or potentially eligible for nomination to the NRHP; a large number of additional sites lie within one and two miles of Site H (Figure 8).

Site I contains no known cultural resources; however, this existing disposal area is adjacent to Magnolia Cemetery, an NRHP listed property (Figure 9) and one archaeological site (38CH1452) lies within one mile. Site J also contains no known cultural resources and no known resources are present within one mile of Site J (Figure 9). Both Sites I and J are within two miles of the downtown Charleston historic district and numerous archaeological sites within this portion of the city (Figure 9).

Site K contains no known cultural resources; at least 12 known archaeological sites are located within one mile Site K (Figure 9), and 20+ sites are located within two miles, including portions of the Mount Pleasant historic district. Site K is also adjacent to and visible from the historic properties moored at Patriots' Point. Site L contains no known cultural resources; however, it is adjacent to Castle Pinckney (38CH76), a NRHP property. The Charleston and Mount Pleasant historic districts are visible from Site L as well.

Site M contains no known cultural resources; seven known archaeological sites lie within one mile (Figure 10). This site is visible from Fort Sumter (38CH75) a NRHP property as well as from Castle Pinckney and Mount Pleasant historic districts.

Site N contains no known cultural resources. Two reported shipwrecks (Civil War monitors USS Keokuk [38CH271] and USS Weehauken [38CH272]) are located near the present low tide line on Morris Island. While precise locations are not available at present, these NRHP eligible resources may be within or adjacent to Site N. Other archaeological sites within one mile of Site N include 38CH992 (the remains of the "Swamp Angel"- a Federal gun that shelled Charleston and its defense during the Civil War) and 38CH1213, the remains of Federal batteries and camps on the north end of Folly Island. Additionally, the Morris Island Light, a NRHP listed property, is visible from Site N (Figure 10).

Sites O and P, lying several miles offshore (see Figure 1), contain no known cultural resources. Undoubtedly, wrecked vessels are present in or near these locales.

Site Q contains no known cultural resources, and no known resources exist within one mile of the site (Figure 8). The Nelliefield Cemetery and 38BK1349 lie within two miles Site Q on the west bank of the Wando River. A large number of sites lie within two miles Site Q on the east bank of the Wando as well. Similarly, Site R contains no known resources and no resources are located within one mile of this site (Figure 8). Again, numerous sites are present on the opposite (east) bank of the Wando River.

Site S contains no known cultural resources. No known resources lie within one mile of Site S; however, large numbers of sites lie within two miles of Site S both on the east and west banks of the Cooper River (Figure 9).

ESTIMATING RESOURCE POTENTIAL

The distributions of sites identified during a selected number of intensive archaeological surveys conducted in the Mount Pleasant and Daniel Island areas were employed to create a simple model of site distributions in the Charleston Harbor area. Simple inspection of the locations of these recorded sites on USGS topographic maps demonstrates that most sites are located within 300 m of tidally affected waterways or marshes. Prehistoric associations with tidal marshes and streams undoubtedly relate to access to marine resources (e.g., shellfish, crustaceans, and fishes). Historic associations with these settings appears to relate to "site" access and the use of waterways a transportation routes (after South and Hartley 1985). Undoubtedly, access to food resources also may have been a factor in the selection of historic locales.

In addition, several of these studies have suggested that soil qualities, principally drainage and permeability, have an affect on the selection of locales for occupation by past occupants of the region. The earliest efforts to demonstrate this relationship were undertaken by Brooks and Scurry (1979) during their survey of AMOCO Chemical Plant location on the Cooper River in Berkeley County, approximately two miles upriver from the northern disposal sites considered during this project. Sixty per cent (16 of 25) of all sites in the AMOCO tract were located on dry, well drained [anhydric] soils (see Table 4). Southerlin and Espenshade (1991) noted a similar association in the Belle Hall Development Tract, on the Wando River in Mount Pleasant, with five of six sites located on anhydric soils (see Table 4).

Comparisons to other surveys in the region demonstrated a similar association with two exceptions (see Table 4). Southerlin et al.'s (1988) survey of Parker Island and Espenshade and Grunden's (1989) survey of the Brickyard Development Tract identified more sites on hydric soils than on drier soil types. It should be noted the two tracts in question contain predominantly hydric soils, and both contain extensive brickworks and associated sites. The poor drainage conditions apparently limited the agricultural use of these lands and prompted their owners to initiate industrial pursuits. The qualities generally considered to limit use of these lands (wet soils probably with high clay contents) would have been ideal for brick making. Undoubtedly, efficiency in manufacture required that ancillary settlements and facilities be located near the brickworks, resulting the location of residential sites in these more marginal areas as well. It should be noted that prehistoric sites were present in these tracts as well. Different parameters must have guided the selection of these wetter areas for occupation during the prehistoric past. Possibly, these areas were drier during the period of prehistoric occupation, or specific activities are represented by these prehistoric deposits that required wet conditions.

The differences in criteria for site selection between prehistoric and historic occupants should be considered in the construction of any definitive model of site location. During the current study, this dichotomy was not undertaken. Basically, the kinds of sites expected to exist within or near a possible disposal site was not considered as critical as the potential for any kind of resource to be present. Plus, as demonstrated in Table 4 with two exceptions, most prehistoric and historic sites conform to the same locational parameters. Thus, development of two separate models of site location (or more) for prehistoric and historic sites, while informative to the understanding of past land use was not critical to the interpretation of possible effects generated by the construction and operation of possible disposal sites at this stage of the selection process.

Using these two environmental variables (distance to tidal water and soil type), the potential of each possible disposal site to contain cultural resources was determined. All of the disposal sites, with the exception of Site Q (Cainhoy Road) and the offshore/underwater sites (L, O, P, and S), lie within 300 m of tidally affected streams or marshes. Thus, cultural resources could be expected to be present in all of these possible disposal sites not underwater.

Soil types within each disposal site (excepting the underwater locales) then were determined to provide additional assessment of the potential of each site to contain cultural resources. Soils within each possible disposal site were separated into anhydric and hydric types. This information is summarized in Table 5. General estimates of the area represented by these types also are included.

Examination of these data provide a basic assessment of the potential of each possible disposal site to contain cultural resources. Initially, the possible underwater disposal sites (Sites L, O, P, and S) are eliminated from these discussions; they will be discussed further below. Those locales that contain existing disposal sites and extremely limited amounts of tidally inundated soils appear to possess little or no potential to contain any unidentified cultural resources; these include Sites A, B, C, E, I, J, and M. While these sites once contained pristine marsh or uplands (i.e., were not buried in dredged materials), access to these original landscapes has been severely restricted (if not rendered impossible) by the presence of many feet of dredge spoil. Additionally, any resources beneath the spoil deposits have probably been altered due to the added pressure and moisture deposited on top of them. Combined with periodic excavations into the spoil deposits to assist in rehabilitation or stabilization of the spoils, most resources buried beneath dredged materials are likely to have been destroyed. Thus, these areas can be considered effectively devoid of cultural resources. Only the undisturbed marsh deposits bordering the existing dikes around present disposal sites would possess any potential for containing cultural resources.

Site N also contains similar deposits; however, Morris Island was the scene of intense military activities during the Civil War that has left various artifacts and possible intact deposits throughout the island. It should be noted that most of the former fortifications on the island have eroded away (see Figure 11). However, at least two known wrecks (the

Table 5. Soils present in the Possible Disposal Sites.

<u>SITE</u>	<u>HYDRIC SOILS</u>	<u>ANHYDRIC SOILS</u>	<u>COMMENTS</u>
A	Bohicket scl*	-	Mostly existing spoil deposits
B	-	-	Existing disposal site
C	Bohicket scl*, Meggett	Duplin	Less than 5% upland
D	Bohicket scl*, Capers*	Cainhoy	≈5% upland
E	-	-	Existing disposal site
F	Capers*, Lenoir fsl, Meggett, Wahee	Caroline, Craven l, Duplin, Norfolk	Mostly upland w/Meggett, Wahee, Lenoir most common
G	Bohicket scl*, Capers* Bethera l, Meggett, Rains fsl	Bonneau, Duplin, Norfolk	Mostly Meggett
H	Tidal Marsh Soft*, Capers* Wadmalaw, Yonges	Hockley, Orangeburg lfs	Mostly Yonges (40%), Anhydric are 20% of tract
I	-	-	Unmapped but existing disposal area
J	-	-	Existing disposal site
K	-	-	Existing disposal site
L	-	-	Underwater
M	Tidal Marsh Soft*, Capers*	-	
N	Capers*, Coastal beaches*	Crevasse-Dawhoo s	Mostly underwater
O	-	-	Underwater offshore
P	-	-	Underwater offshore
Q	Lenoir fsl, Meggett, Wahee	Goldsboro	Mostly Meggett and Wahee
R	Bohicket scl*, Capers*, Meggett, Wahee	-	
S	-	-	Underwater

*Indicates tidally inundated soils or deposits
c= clay, f= fine, l= loam, s= sand

monitors USS Keokuk [38CH271] and Weehauken [38CH272]) lie in the intratidal zone on the foreshore of the island, and may be present within possible Disposal Site N. Limited inspection of dune fields and beaches on Morris Island (see Figure 10) failed to recover any cultural remains or identify areas that appeared likely to contain intact cultural deposits. These negative results should not be considered too highly however; more intensive efforts, including alternate techniques such as metal detecting, may be necessary to locate military artifacts or facilities in such environments.

The remaining six possible disposal sites are primarily upland locales. As stated above, Site H (Parker Island) has been intensively surveyed; this tract contains 18 archaeological sites (38CH306 and 38CH1023 through 38CH1039). Site D (Upper Thomas Island) lies primarily in tidal marshes. However, the site intrudes upon uplands that consist entirely of Cainhoy fine sands; numerous sites have been recorded on this soil type on the Cainhoy Peninsula (see Table 4). Thus, the approximately five per cent of this site that lies on the uplands has a very potential to contain cultural resources. Inspection of the northeast corner of Site D (see Figure 7) during the field investigations failed to recover any cultural remains. However, prehistoric Middle Woodland check stamped ceramics were observed on private lands between Cainhoy Road and the possible disposal site during an initial reconnaissance of Site D. Thus, the potential for remains within the site remains high.

Sites F, G, Q, and R also consist of primarily uplands, with tidal marshes included. However, the majority of these tracts are covered by hydric soils. Thus, these sites presumably possess a lower potential for containing cultural resources than the upland portions of Site D. Inspection of portions of Site F along the marshes of Clouter and Beresford Creeks (see Figure 7) failed to identify any cultural remains. While most of this area contains few hydric soils, the intensity of coverage was not adequate to eliminate the possibility of archaeological deposits being present in the site. Similarly, three portions of Site R adjacent to the Wando River, Sanders Creek, and an interior wetland (see Figure 8) were examined without recovering any cultural remains. Inspection of areas adjacent to the logging roads through Site Q (see Figure 8) again produced negative results. Again, the limited intensity of coverage in these sites combined with the presence of soils interpreted to possess a lower potential for containing cultural resources precludes any assumptions that no cultural resources are likely to be present in these upland sites. Rather, site densities (i.e., the numbers of sites per acre) in areas defined as possessing low probabilities for cultural remains generally are lower, thereby suggesting that more acres would have to be examined to find a site than in areas defined as possessing high probabilities for cultural remains.

It should be noted that most tidal marshes have been assumed to possess little or no potential to contain cultural resources. Few sites have been identified in the tidally affected portions of the Charleston Harbor region. However, few surveys have included these environments since most development activities (the usual "trigger" for undertaking cultural resource surveys) are restricted from affecting marshes and waterways. However, sites have

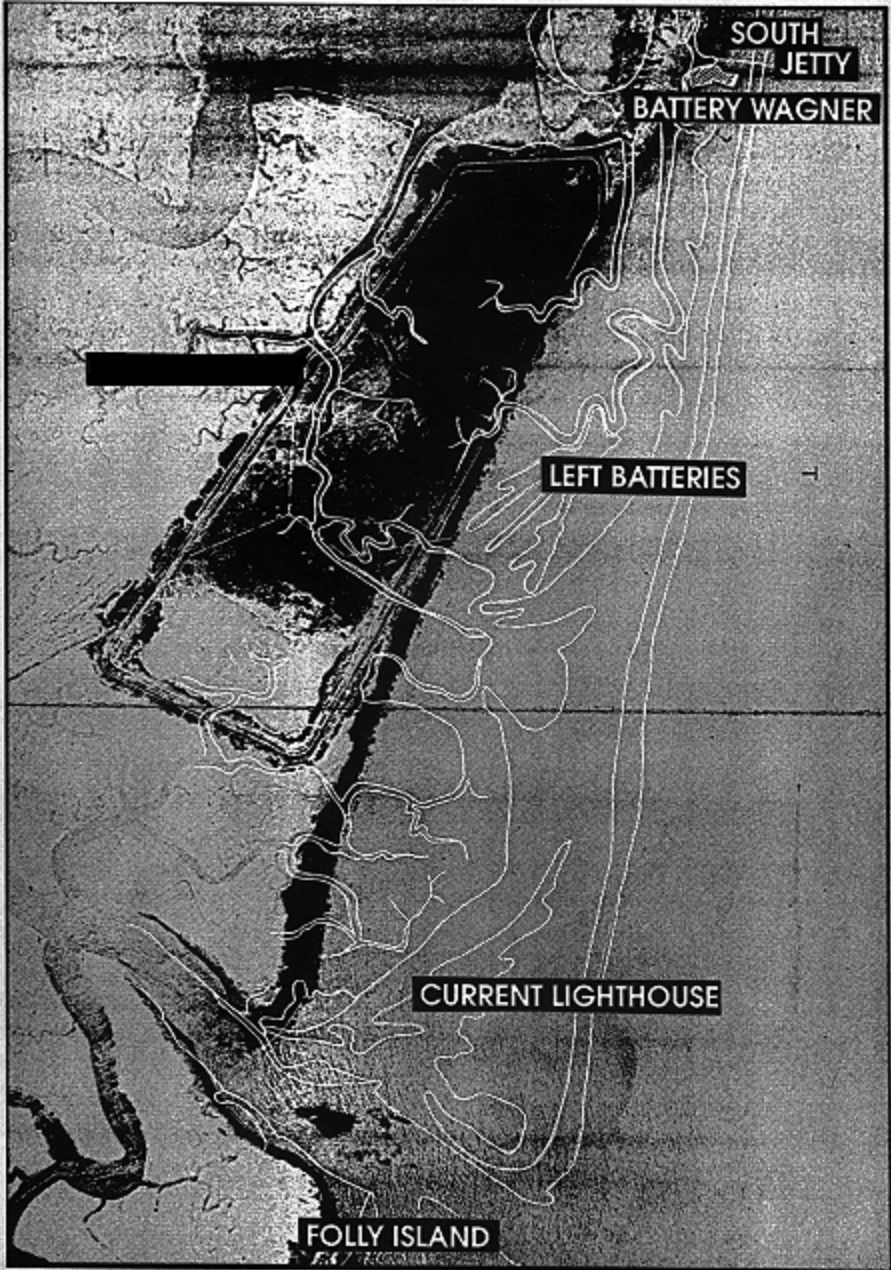


Figure 11. Reconstruction of Civil War fortifications on present day photograph of Morris Island (courtesy of Willis J. Keith, SC Wildlife and Marine Resources Department).

been recorded in these environments and the potential for marine resources (buried vessels, small boats, etc.) is relatively high. Prehistoric archaeological sites may include locales that have subsided since their original occupation and are now in marsh. Historic sites also may include lime processing sites (oyster shell mounds), landings, or causeways.

The general setting of the disposal site with respect to the Cooper or Wando River will provide some additional assessment of this potential. Islands such as those in Sites A, E, and J are likely to have been reworked by Cooper and Wando Rivers through time; comparisons of historic maps and photorevisions of modern topographic maps attest to the active modifications of these landforms. Thus, one could expect the potential for these islands to contain prehistoric cultural resources would be less than marshes that located on the margins of the river valleys (e.g., Sites B and C) or along secondary drainages such as Beresford Creek (e.g., Site G). Historic resources would be less likely to have been affected by the normal processes of these rivers given their shorter period of exposure; however, deposition and/or erosion could have buried or reworked historic structures or sites in a similar manner.

Potential for marine resources within the possible disposal sites was determined through consultation with staff archaeologists at the South Carolina Institute of Archaeology and Anthropology (Christopher Amer and Mark Newell). Underwater resources (principally wrecked vessels) potentially can exist in any of the underwater disposal sites (Sites L, O, P, and S) and some of the other locales (e.g., known wrecks of historic significance exist in or near Site N). Further, possible disposal sites containing larger creeks within tidal marsh also could contain wrecked vessels (principally small craft), and refuse deposits associated with historic residential locales could be expected in streams adjacent to such locales (e.g., 38CH1031 and 38CH1039 on Horlbeck Creek in Site H). Thus, areas not currently covered by spoil all possess some potential for containing submerged resources.

These considerations resulted in the following estimates of cultural resource potential for each site:

High Potential for Unknown Resources	Sites D and N.
Moderate Potential for Unknown Resources	Sites F, G, L, Q, R, S.
Low Potential for Unknown Resources	Sites A, C, H, I, M, O, P.
No Potential for Unknown Resources	Sites B, E, J, K.

These estimates of resource potential will be employed to assist in the assessment of potential effects to cultural resources for each site following a discussion of the kinds of effects that can be anticipated during the construction and operation of a disposal site.